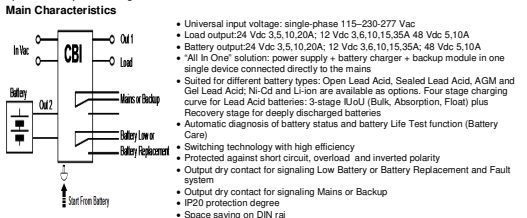
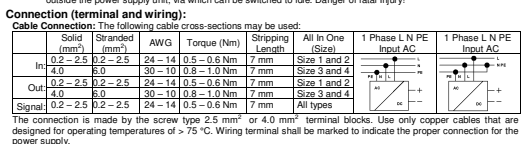


"All In One" CBI series: Uninterruptible Power Supply DC-UPS
 Thank you for having chosen one of our products for your work.
 We are certain that will give the utmost satisfaction and be a notable help on the job.

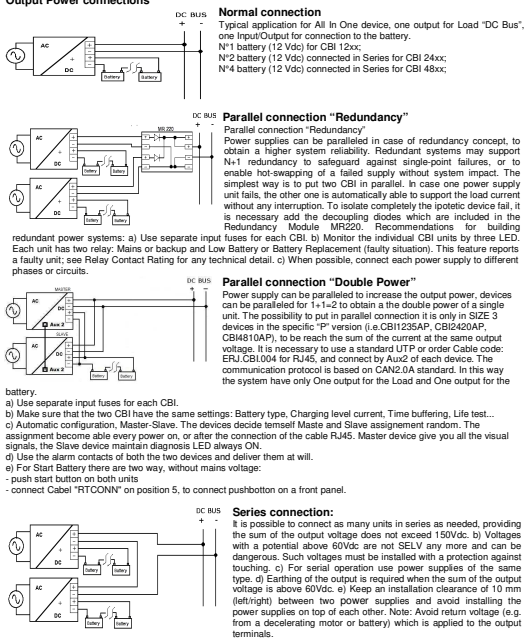
General Description:
 Thanks to "All In One" CBI series of DC-UPS, it will be possible to optimize the power management of your system with one single, extremely compact and cost-effective device, connected directly to the mains. The available power is automatically distributed between load and battery giving priority to the load. Battery can supply the load even with mains so the output power to the load can be twice the nominal power if it is required (Power Boost). When mains failure occurs, the load continues to be supplied by the battery in backup mode. It is also possible to switch on the device with no mains directly from battery. The "Battery Care" algorithm performs rapid and automatic charging, battery charge optimization in time, flat batteries diagnosis and real time diagnostic during installation and operation. Temperature compensation is possible to connect the temperature sensor probe. The real time auto-diagnostic system monitors battery faults such as sulfated battery, shorted cells, accidental reverse polarity connection or disconnection of the battery. Every fault is signaled by a blink code (LED Diagnostic LED). The battery is recharged in order to be easily detected and removed during the installation and after sales. The continuous monitoring of battery efficiency reduces risk of battery damage and allows a safe operation in permanent connection. Predefined currents can be selected by jumpers or DIP switch to optimize the charge of different battery types: Open Lead Acid, AGM and Gel Lead Acid; Ni-Cd are rechargeable in the same device. Charging curves can be customized via Modbus (only in some models). Output dry contacts are used to signal both backup and fault conditions. A rugged casing with bracket for DIN rail mounting provides IP20 protection grade.



Safety and warning notes
WARNING - Explosion Hazard Do not disconnect Equipment unless power has been switched off or the area is known to be non-hazardous.
WARNING - Explosion Hazard. Substitution of components may impair suitability for class 1, Division 2.
WARNING - Switch off the system before the module. Never work on the machine when it is live. The device must be installed in accordance with UL508 or UL60950. The device must have a suitable isolating facility outside the power supply unit, via which can be switched to idle. Danger of fatal injury!



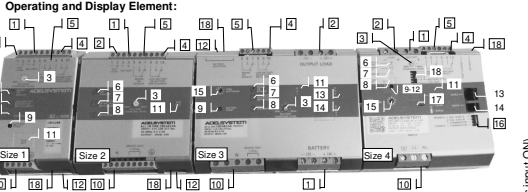
Output Power connections



Output Load (Mains Input ON)
 The output Load in normal mode. Mains Input Vac Voltage present, follow the charging battery dc output voltage. The minimum and maximum range established are the following:
 CBI 24x25 - 14.4 Vdc; 15.5 Vdc for NiCd (Without battery connected out. Voltage fixed at 12Vdc)
 CBI 24x25 - 28.8 Vdc; 30 Vdc for NiCd (Without battery connected out. Voltage fixed at 24Vdc)
 CBI 48x44 - 57.6 Vdc; 60 Vdc for NiCd (Without battery connected out. Voltage fixed at 48Vdc)
 Thanks to the All In One units, it will be possible to manage the power. The available power, is automatically allocated between load and battery; supplying power to the load is the first priority of the unit; thus it is not necessary to double the power and also the power available for the battery will go to the load if the load requires it.
 In "Power Boost Mode" the maximum current on the load output is the 2 times the rated current x 2 in (load = In-Batt) in continuous operation and 3 times the rated current x 3 in (load = 2In-Batt) for 4 seconds; after this parameter the device is electrically protected against overload and short circuit.
 In "Power Boost Mode", if the current of the battery generate current to the load for a time more than 4 minutes, the device give message (8 Blink), consequently means that the battery is discharging. If the Mains Input Voltage fall below a Threshold level (50% of the Typ. Vac) input the battery is immediately connected to the Output Load, without any interruption.
 Voltage dpe: In this situation the voltage in the output load it is the same of the battery.
To avoid deep battery discharge, the battery will supply the load until battery voltage reaches 1.5 V/cell. Below this level the device automatically switches off to prevent Deep discharge and battery damage.

Output Load In Buffer Mode (Mains Input OFF)
 Some example of buffering time depending on LOAD Output in function to the Ah of the battery.

| Buffering Time | BATT 1.2 Ah | BATT 3 Ah | BATT 7.2 Ah | BATT 12 Ah | BATT 100 Ah |
|----------------|-------------|-----------|-------------|------------|-------------|
| Load 1.5 A | 20 min | 60 min | 200 min | 400 min | / |
| Load 3 A | 8 min | 30 min | 120 min | 240 min | / |
| Load 5 A | 3 min | 15 min | 55 min | 100 min | / |
| Load 7.2 A | 2 min | 10 min | 30 min | 60 min | / |
| Load 10 A | 1 min | 7 min | 20 min | 45 min | 20 h |
| Load 12 A | No | 3 min | 12 min | 30 min | 600 min |
| Load 15 A | No | 2 min | 9 min | 20 min | 400 min |
| Load 20 A | No | 1 min | 7 min | 15 min | 240 min |



No. 1: Battery Connection Port:
 Connect the battery between pin. 3 (-) and 4 (+)
 One Input (12 Vdc) for CBI 2x2;
 Two battery (12 Vdc) connected in Series for CBI 2x4;
 Two battery (12 Vdc) connected in Series for CBI 4x4;
No. 2: Output Load (Size 4)
 Connect this output to the load 1 (-); 2 (+).
No. 3: Charging Level Current:
 In order to protect the battery from excessive charging currents, the device allows you to limit the maximum charge current by adjusting the trimmer. It allows you to limit from max in up to 20% of current. To determine the maximum battery charge current, see the battery manufacturer's Data Sheet. If it is not possible, consider that on average the maximum charge current is 10% of Ah's rated battery current. The data is suitable for both Lead Acid and NiCd batteries.

No. 10: Input AC Port pin. L, N, PE
 Phase Switching Power Supplies L, N, PE
 Size 2 and Size 3 BRIDGE ONLY for Input 115 Vac, and connect L, N, PE
No. 11: Auxiliary Output "AUX 1"
 Remove the window label to find the connector.
 It is possible to connect the Temperature sensor probe and apply it on the battery. The function of the probe is for temperature battery compensation. With this it is possible to apply the specifications of the EN54-4 fire norm.
 Size 1, 2, 3
Battery Temperature Compensation Charge (not for NiCd)
 Connecting to Auxiliary Output AUX1 the cable RJTEMP (supplied separately), the CBI will vary the voltage of battery charging depending on the temperature:

| Fast Charge | Float charge |
|--|--|
| +5mV/°C x n. of Cells from -8°C to +45°C | +3mV/°C x n. of Cells from -20°C to +45°C |
| +140mV/Cell - 200mV/Cell compared to the value at 20°C | +120mV/Cell - 120mV/Cell compared to the value at 20°C |

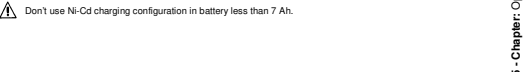
The device stop to charge the battery if the temperature is less than -20°C or greater than +45°C. The alarm fault battery could be signalled by 7 blink code.
 The sensor placed on cable RJTEMP must be applied on the battery.
No. 13: Auxiliary Output "AUX 2"
 Present only in Sizes 3 and Sizes 4, connection MODBUS via RJ45 connector. See instruction MODBUS communications protocol. (CANBUS to be implemented).
No. 14: Auxiliary Output "AUX 3"
 Present only in Sizes 4. The function is the same of Auxiliary Output "AUX 2"
No. 15: Buffering Time Setting (Size 3-4)
 On models Size 3 and Size 4 it is possible to set a buffering time. It can be selected by setting the desired value on the battery switch. 13. Buffering time is initiated when the mains is switched OFF. The LOAD output will be ON for the selected time.

| Switch position | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|-----------------------|---|-----|---|---|----|----|----|----|----|----|
| Buffering Time (min.) | 0 | 0.5 | 2 | 5 | 10 | 15 | 20 | 30 | 45 | 60 |

If the switch in position 0, the LOAD output will be in ON state until the battery is completely discharged. Any way to prevent damage risks, the unit disconnects the batteries when a minimum voltage level is reached.
 For units Size 1 or 2 you have to version with the extension CBXC04Tx. The LOAD output will be in ON state until the battery it is completely discharged. It is however possible to request factory customized versions with specific buffering time setting.
No. 16: Bus Termination (Size 4)
 Caution: Switch off the system before Setting the Jumper.
 Read the MODBUS/CANBUS instruction manual to learn about the operational functions available.
 Jumper Setting always active during all states of the system.
No. 17: Select Output Voltage (Size 4)
 Caution: Switch off the system before Setting the Jumper



No. 18: Battery Management Configurations (Sizes 1,2,3,4)
 Preliminary Operations: One device for all battery types.
 Completely automatic, all devices are suitable to charge most batteries types thank to User Selectable charging curves. They can charge open lead acid, sealed lead acid, Gel and Ni-Cd. It is possible to charge or add other charging curves connecting the device to a portable PC.
 Caution: Switch off the system before Setting the jumper. Only 7 jumper in position 6 is Refreshed also with power ON.



Page 1 - Chapter: Output Load (Mains input ON)

Page 2 - Chapter: Output Power connections

Page 3 - Chapter: Output Load (Mains input ON)

Page 4 - Chapter: Operating and Display Element:

Notice:
 Do not leave the jumper in position 5; otherwise, in Backup mode, the battery discharges completely close to Zero.
 For Size 2; must be require CBI2410AS or CBI4854AS (/S means that battery by battery functions, otherwise only start with Input Mains)
 2 CBI243ATB1 and CBI245ATB1 Replaces the fast charge in:
 • Contact closed: back-up (UPS) enabled.
 • Contact open: Inhibit backup function. No UPS enabled.
 • Contact open: Inhibit backup function. No UPS enabled.
 CBI280124A
 • Contact closed: back-up (UPS) enabled.
 • Contact open: Inhibit backup function. No UPS enabled.
 3 Jumper present in Fast Charge means also that every 288h, the device go in "Cycling Refresh Charging". This mode continue for 85 minutes at the same voltage condition: 2.4V/Cell; for Lead Acid Batteries.
 4 Please note that it is possible to use lithium-charging curve just with a single BMS. From the release:
 • Size1
 ◦ 12Vdc Output: S13 R6
 ◦ 24Vdc Output: S13 R7
 • Size2
 ◦ 24Vdc Output: S92 R3
 • Size3
 ◦ 12Vdc, 24Vdc, 48Vdc Output: S40 R13
 • Size4
 ◦ Only by custom request

5. By DPV351 or ADELVsystem it is possible configure a Customized Charging Curve. After programming it will be possible disconnect the programmer an use the device as standalone device.
Battery Care
 The Battery Care philosophy is based on algorithms that implement rapid and automatic charging. Battery charge optimization during time, flat batteries recovery and real time diagnostic during installation and operation. Elements in short circuit, accidental reverse polarity connection, disconnection of the battery, can easily be detected and removed by help of Blink Code of Diagnosis Led, during the installation and after sell. Each device is suited for all battery types, it is possible setting predefined curves for Open Lead Acid, Sealed Lead Acid, Gel, Ni-Cd (option). They guarantees battery reliability in time by continuously testing the internal impedance status, avoids any possible risk of damages and grants a permanent, reliable and safe connection of the battery to the power supply. The system, through a battery simulation circuit with algorithms of evaluation of the detected parameter, is able to recognize sulfated batteries or batteries with a short-circuited element. Battery Test. Every 60 sec. check battery connection. Every 220 minute in Float charge, make the test of the battery efficiency. The Battery Fault will be monitored by relay and led blinking.

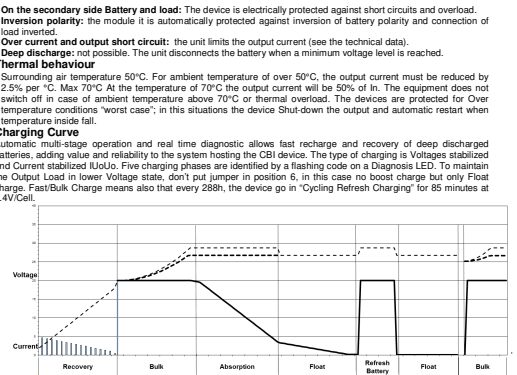
Diagnostic Type Checks:
Check for accidental disconnection of the battery cables:
 All In One detects accidental disconnection and immediately switched off the output power.
Battery not connected:
 If the battery is not connected no output power.
Test of quality wire connections:
 During Float charge the quality (resistance) on the battery connection is checked every 60 sec. This to detect if the cable connection has been properly made.
Battery in Open Circuit or Sulfated:
 Every 220 minute. All In One tests of internal impedance, in Float charging mode.
Reverse Polarity check:
 If the battery it is connected with inverted polarity, All In One is automatically protected.
Test of battery connection:
 Appropriate voltage check, to prevent connection of wrong battery types, more or less than the nominal voltage.
End of Charge Check:
 When the battery it is completely full, the device automatically switch in Float charging mode.

Check for Batteries Cells in short circuit
 Thanks to specific algorithms of evaluation, the CBs recognize batteries with cells in internal short circuit. In Float charge every 220 minute test of element in short circuit.
Diagnosis of battery and detection of faults:
 All In One devices support a using during installation and operation. A Blink code of Diagnosis Led allows to discriminate among various possible faults.
Protection Features
 Error conditions: "LED Battery Fault" ON and "LED Diagnosis" blinking with sequence, see Display Signal section.
On the primary side: the device is equipped with an internally fuse. If the internal fuse is activated, it is most probable that there is a fault in the device. If happen, the device must be checked in the factory.

Page 5 - Chapter: Operating and Display Element:

Page 6 - Chapter: Operating and Display Element:

Page 7 - Chapter: Diagnostic Type Checks:



Standard and Certifications
Electrical Safety For Mounting:
 Device assembling: UL508, IECEN 60950 (VDE 0905) and EN 50178 (VDE 0160). Installation according: IECEN 60950, Input Output separation: SELV EN 60950-1 and PELV EN 60204-1. Double or reinforced insulation. Safety of Electrical Equipment Machines, EN 60204-1.
EMC Standards Immunity:
 EN 61000-4-2, EN 61000-4-3, EN 61000-6-2, EN 61000-4-4, EN 61000-4-5.
EMC Standards Emission:
 EN 61000-5-1, EN 61000-6-3, EN 61000-3-2 (see data sheet for each device)
Conformity to:
 EN60950/UL60950-1 and CSA C22.2 No. 60950-1-07 (Information Technology Equipment) - Safety - Part1: General Requirement. **W.**
 Device is intended to be installed in a cabinet protected from external shocks or damages.
 IEC/EN 60335-2-29 Battery chargers
 Electrical safety EN54-4 Fire Detection and fire alarm systems;
 DIN1173 (Charging cycle).
Approved:
 Devices: CB243A, CBI245A, CBI123A, CBI126A, CBI210A, EN60950, UL60950-1 and CSA C22.2 No. 60950-1-07 (Information Technology Equipment) - Safety - Part1: General Requirement. **W.**
Rail Mounting:
 All modules must have a minimum vertical and horizontal distance of 10 cm to this power supply in order to guarantee sufficient air convection. Depending on the ambient temperature and load of the device, the temperature of the housing can become very high.

Page 1 - Chapter: Output Power connections

Page 2 - Chapter: Output Power connections

Page 3 - Chapter: Output Power connections

Page 4 - Chapter: Operating and Display Element:

Page 5 - Chapter: Operating and Display Element:

Page 6 - Chapter: Operating and Display Element:

Page 7 - Chapter: Diagnostic Type Checks:

Page 8 - Chapter: Diagnostic Type Checks:

| DC Ups - All in ONE | 12/24Vdc | | | | 12Vdc | | | | 24Vdc | | | | 48Vdc | |
|--|---|----------------------------------|----------------------------------|----------------------------------|----------------------------------|---|--------------------------------|--------------------------------|----------------------------------|----------------------------------|----------------------------------|-----------------------------|-----------------------------|--|
| | | | | | | | | | | | | | | |
| Input (Volt) | 115 – 230 – 277Vac | 115 – 230 – 277Vac | 115 – 230 – 277Vac | 115 – 230 – 277Vac | 115 / 230 – 277Vac | 115 – 230 – 277Vac | 115 – 230 – 277Vac | 115 – 230 – 277Vac | 115 / 230 – 277Vac | 115 / 230 – 277Vac | 115 / 230 – 277Vac | 115 / 230 – 277Vac | 115 / 230 – 277Vac | |
| Output (Vdc – A – W) | 12-24V / 15-10A / 280W | 12Vdc – 3A – 36W | 12Vdc – 6A – 72W | 12Vdc – 10A – 120W | 12Vdc – 35A – 420W | 24Vdc – 3A – 72W | 24Vdc – 5A – 120W | 24Vdc – 10A – 240W | 24Vdc – 20A – 500W | 48Vdc – 5A – 240W | 48Vdc – 10A – 500W | | | |
| Reference | CBI2801224A | CBI123A | CBI126A | CBI1210A | CBI1235A | CBI243A | CBI245A | CBI2410A | CBI2420A | CBI485A | CBI4810A | | | |
| INPUT DATA | | | | | | | | | | | | | | |
| Nominal Input Voltage | 115 – 230 – 277Vac | 115 – 230 – 277Vac | 115 – 230 – 277Vac | 115 – 230 – 277Vac | 115 / 230 Vac | 115 – 230 – 277Vac | 115 – 230 – 277Vac | 115 – 230 – 277Vac | 115 / 230 Vac | 115 / 230 Vac | 115 / 230 Vac | 115 / 230 Vac | 115 / 230 Vac | |
| Input Voltage Range | 90 – 135Vac 180 – 305Vac | 90 – 305Vac | 90 – 305Vac | 90 – 305Vac | 90 – 305Vac | 90 – 305Vac | 90 – 305Vac | 90 – 305Vac | 90 – 135Vac 180 – 305Vac | 90 – 135Vac 180 – 305Vac | 90 – 135Vac 180 – 305Vac | 90 – 135Vac 180 – 305Vac | 90 – 135Vac 180 – 305Vac | |
| Inrush Current (Vn and In Load) I _t | ≤ 16 A ≤ 5msec | ≤ 36 A ≤ 5msec | ≤ 36 A ≤ 5msec | ≤ 36 A ≤ 5msec | ≤ 36 A ≤ 5msec | ≤ 36 A ≤ 5msec | ≤ 36 A ≤ 5msec | ≤ 36 A ≤ 5msec | ≤ 36 A ≤ 5msec | ≤ 42 A ≤ 5msec | ≤ 42 A ≤ 5msec | ≤ 42 A ≤ 5msec | ≤ 35 A ≤ 5msec | |
| Frequency | 47 – 63 Hz | 47 – 63 Hz | 47 – 63 Hz | 47 – 63 Hz | 47 – 63 Hz | 47 – 63 Hz | 47 – 63 Hz | 47 – 63 Hz | 47 – 63 Hz | 47 – 63 Hz | 47 – 63 Hz | 47 – 63 Hz | 47 – 63 Hz | |
| Input Current (115 – 230Vac) | 5.5 – 3A | 2.8 – 1.3A | 2.8 – 1.3A | 2.8 – 1.3A | 9.0 – 4.5A | 2.8 – 1.3A | 2.8 – 1.3A | 2.8 – 1.3A | 5 – 2.5A | 9.0 – 4.5A | 5 – 2.5A | 9.0 – 4.5A | 9.0 – 4.5A | |
| Internal Fuse | 6.3A | 4A | 4A | 4A | 10A | 4A | 4A | 4A | 6.3A | 10A | 6.3A | 10A | 6.3A | |
| External Fuse (recommended) | 16A | 10A | 10A | 10A | 16A | 10A | 10A | 10A | 16A | 16A | 16A | 16A | 16A | |
| OUTPUT DATA | | | | | | | | | | | | | | |
| Output Vdc /In | 12Vdc 15A / 24Vdc 10A | 12Vdc – 3A | 12Vdc – 6A | 12Vdc – 10A | 12Vdc – 35A | 24Vdc – 3A | 24Vdc – 5A | 24Vdc – 10A | 24Vdc – 20A | 48Vdc – 5A | 48Vdc – 10A | | | |
| Output Current (In) | 15A / 10A | 3A | 6A | 10A | 35A | 3A | 5A | 10A | 20A | 5A | 10A | | | |
| Dissipation Power load max (W) | 28 | 15 | 18 | 25 | 68 | 18 | 25 | 48 | 68 | 48 | 68 | | | |
| Minimum load | No | No | No | No | No | No | No | No | No | No | No | | | |
| Efficiency (50% of In) | > 91% | ≥ 89% | ≥ 89% | ≥ 89% | > 90% | ≥ 89% | ≥ 89% | ≥ 89% | > 90% | ≥ 83% | > 90% | ≥ 83% | > 90% | |
| Short-circuit protection | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | | | |
| Over Load protection | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | | | |
| Over Voltage Output protection | Yes (Typ. 35Vdc) | Yes (Typ. 35Vdc) | Yes (Typ. 35Vdc) | Yes (Typ. 35Vdc) | Yes (Typ. 35Vdc) | Yes (Typ. 35Vdc) | Yes (Typ. 35Vdc) | Yes (Typ. 35Vdc) | Yes (Typ. 35Vdc) | Yes (Typ. 35Vdc) | Yes (Typ. 35Vdc) | | | |
| Overheating Thermal Protection | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | | | |
| Reverse battery protection | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | | | |
| Sulfated battery check | Yes by Deep Switch | Yes by Jumper | Yes by Jumper | Yes by Jumper | Yes by Jumper | Yes by Jumper | Yes by Jumper | Yes by Jumper | Yes by Jumper | Yes by Jumper | Yes by Jumper | | | |
| LOAD OUTPUT | | | | | | | | | | | | | | |
| Output voltage (at In) Vdc | 10 – 14.4Vdc (15.5Vdc for Ni-Cd) 28.8Vdc (31Vdc for Ni-Cd) | 10 – 14.4Vdc (15.5Vdc for Ni-Cd) | 10 – 14.4Vdc (15.5Vdc for Ni-Cd) | 10 – 14.4Vdc (15.5Vdc for Ni-Cd) | 10 – 14.4Vdc (15.5Vdc for Ni-Cd) | 22 – 28.8Vdc (31Vdc for Ni-Cd) | 22 – 28.8Vdc (31Vdc for Ni-Cd) | 22 – 28.8Vdc (31Vdc for Ni-Cd) | 22 – 28.8Vdc (31Vdc for Ni-Cd) | 44 – 57.6Vdc (62Vdc for Ni-Cd) | 44 – 57.6Vdc (62Vdc for Ni-Cd) | | | |
| Start up with strong load (capacitive load) | Yes, Unlimited | Yes, Unlimited | Yes, Unlimited | Yes, Unlimited | Yes, Unlimited | Yes, Unlimited | Yes, Unlimited | Yes, Unlimited | Yes, Unlimited | Yes, Unlimited | Yes, Unlimited | | | |
| Residual Ripple / Ripple Residuo | ≤ 60 mVpp | ≤ 60 mVpp | ≤ 60 mVpp | ≤ 60 mVpp | ≤ 60 mVpp | ≤ 60 mVpp | ≤ 60 mVpp | ≤ 60 mVpp | ≤ 60 mVpp | ≤ 60 mVpp | ≤ 60 mVpp | | | |
| Nominal Current In = Iload | 1.1 x In A ± 5% | 1.1 x In A ± 5% | 1.1 x In A ± 5% | 1.1 x In A ± 5% | 1.1 x In A ± 5% | 1.1 x In A ± 5% | 1.1 x In A ± 5% | 1.1 x In A ± 5% | 1.1 x In A ± 5% | 1.1 x In A ± 5% | 1.1 x In A ± 5% | | | |
| Continuous current (without battery) Iload = In | 15A 12Vdc / 10A 24Vdc | 3A | 6A | 10A | 35A | 3A | 5A | 10A | 20A | 5A | 10A | | | |
| Max continuous current (with battery) Iload = In + Ibatt | 30A 12Vdc / 20A 24Vdc | 6A | 12A | 20A | 70A | 6A | 10A | 20A | 40A | 10A | 20A | | | |
| Max current Output Load: (Main Input) Iload (4sec.) | max. 45A 12Vdc / 30A 24Vdc | 9A max | 18A max | 30A max | 105A max | 9A max | 15A max | 30A max | 60A max | 15A max | 30A max | | | |
| Max current Output Load: (Back Up) Iload (4sec.) | max. 30A 12Vdc / 20A 24Vdc | 6A max | 12A max | 20A max | 70A max | 6A max | 10A max | 20A max | 40A max | 10A max | 20A max | | | |
| Push Button or Remote Input Control (AMP type connector) Start from Battery without main | Yes | No (1) | No (1) | No (1) | Yes | No | No | No | Yes | No | Yes | | | |
| Time Buffering; (switch off output without main input) | 0.5;1;3;5;10;15; 20; 30; 45;60;= | (2) | (2) | (2) | 0.5;1;3;5;10;15; 20; 30; 45;60;= | (2) | (2) | (2) | 5 min standard - Require: SW S31 | 0.5;1;3;5;10;15; 20; 30; 45;60;= | 5 min standard - Require: SW S31 | | | |
| Threshold alarm Battery almost flat | 10 – 11 Vdc batt / 20 – 21 Vdc batt | 10 – 11 Vdc batt | 10 – 11 Vdc batt | 10 – 11 Vdc batt | 10 – 11 Vdc batt | 20 – 21 Vdc batt | 20 – 21 Vdc batt | 20 – 21 Vdc batt | 20 – 21 Vdc batt | 40 – 42 Vdc batt | 40 – 42 Vdc batt | | | |
| Protections against total discharge | 9 – 10 Vdc batt / 19 – 20 Vdc batt | 9 – 10 Vdc batt | 9 – 10 Vdc batt | 9 – 10 Vdc batt | 9 – 10 Vdc batt | 19 – 20 Vdc batt | 19 – 20 Vdc batt | 19 – 20 Vdc batt | 19 – 20 Vdc batt | 38 – 40 Vdc batt | 38 – 40 Vdc batt | | | |
| BATTERY CHARGER OUTPUT | | | | | | | | | | | | | | |
| Boost charge (Typ. at I _b) | 14.4Vdc / 28.8Vdc | 14.4Vdc | 14.4Vdc | 14.4Vdc | 14.4Vdc | 28.8Vdc | 28.8Vdc | 28.8Vdc | 28.8Vdc | 57.6Vdc | 57.6Vdc | | | |
| Short circuit Element Detection | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | | | |
| Max.Time Boost–Bulk charge (Typ. at I _b) | 15h | 15h | 15h | 15h | 15h | 15h | 15h | 15h | 15h | 15h | 15h | | | |
| Min.Time Boost–Bulk charge (Typ. at I _b) | 1min. | 1min. | 1min. | 1min. | 1min. | 1min. | 1min. | 1min. | 1min. | 1min. | 1min. | | | |
| Float charge (Typ. at I _b) | 13.8Vdc / 27.6Vdc | 13.75Vdc | 13.75Vdc | 13.75Vdc | 13.75Vdc | 27.5Vdc | 27.5Vdc | 27.5Vdc | 27.5Vdc | 55Vdc | 55Vdc | | | |
| Recovery Charge | 2 – 10Vdc / 2 – 20Vdc | 2 – 9Vdc | 2 – 9Vdc | 2 – 9Vdc | 2 – 9Vdc | 2 – 16Vdc | 2 – 16Vdc | 2 – 16Vdc | 2 – 16Vdc | 2 – 24Vdc | 2 – 24Vdc | | | |
| Turn-On delay after applying mains voltage | 3sec. Max | 1sec. Max | 1sec. Max | 1sec. Max | 1sec. Max | 1sec. Max | 1sec. Max | 1sec. Max | 1sec. Max | 1.5sec. Max | 1sec. Max | | | |
| End of charging current (Bulk charge) | 6% of charging current limiting | 0.3A | 0.3A | 0.3A | 0.3A | 0.3A | 0.3A | 0.3A | 0.3A | 0.3A | 0.3A | | | |
| Charging max I _{batt} | 15A ± 5% 12Vdc / 10A ± 5% 24Vdc | 3A ± 5% | 6A ± 5% | 10A ± 5% | 35A ± 5% | 3A ± 5% | 5A ± 5% | 10A ± 5% | 10A ± 5% | 5A ± 5% | 10A ± 5% | | | |
| Charging current Limiting I _{batt} (I _{bat}) | 10 ± 100 % / I _{bat} | 20 ± 100 % / I _{bat} | 20 ± 100 % / I _{bat} | 20 ± 100 % / I _{bat} | 20 ± 100 % / I _{bat} | 20 ± 100 % / I _{bat} | 20 ± 100 % / I _{bat} | 20 ± 100 % / I _{bat} | 20 ± 100 % / I _{bat} | 20 ± 100 % / I _{bat} | 20 ± 100 % / I _{bat} | | | |
| Jumper Config.Type Battery (NICd optional) | | | | | | 2.23 V/cell Open Lead, 2.25 V/cell Sealed Lead, 2.27 V/cell Sealed Lead, 2.3 V/cell gel; NiCd 1.51V | | | | | | | | |
| Quiescent Current | ≤100mA | ≤100mA | ≤100mA | ≤100mA | ≤100mA | ≤100mA | ≤100mA | ≤100mA | ≤100mA | ≤100mA | ≤100mA | | | |
| Remote Input Control (AMP Type connector) | Bulk / Trickle | Bulk / Trickle | Bulk / Trickle | Bulk / Trickle | Bulk / Trickle | Bulk / Trickle | Bulk / Trickle | Bulk / Trickle | Bulk / Trickle | Bulk / Trickle | Bulk / Trickle | | | |
| Charging Curve | | | | | | IUoUo, Automatic, 3 stage / IUoUo, Automatic a 3 Stadi | | | | | | | | |
| SIGNAL OUTPUT (RELAY) | | | | | | | | | | | | | | |
| Main or Backup Power | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | | | |
| Low Battery | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | | | |
| Fault Battery | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | | | |
| AUXILIARY OUTPUT | | | | | | | | | | | | | | |
| UPS Enabling | Yes | No | No | No | No | No | No | No | No | No | No | | | |
| Temp. Charging probe | Yes RJ11 | Yes RJ45 | Yes RJ45 | Yes RJ45 | Yes RJ45 | Yes RJ45 | Yes RJ45 | Yes RJ45 | Yes RJ45 | Yes RJ45 | Yes RJ45 | | | |
| Parallel connection | No | No | No | No | Yes | No | No | No | Yes | No | Yes | | | |
| Communication Protocol | ModBus | No | No | No | ModBus | No | No | No | ModBus | No | ModBus | | | |
| CLIMATIC DATA | | | | | | | | | | | | | | |
| Ambient Temperature operation | -25 + +70°C | -25 + +70°C | -25 + +70°C | -25 + +70°C | -25 + +70°C | -25 + +70°C | -25 + +70°C | -25 + +70°C | -25 + +70°C | -25 + +70°C | -25 + +70°C | | | |
| De rating T _a > (In) / De rating T _a > (In) | > 50° -2.5%(In) / °C | > 50° -2.5%(In) / °C | > 50° -2.5%(In) / °C | > 50° -2.5%(In) / °C | > 50° -2.5%(In) / °C | > 50° -2.5%(In) / °C | > 50° -2.5%(In) / °C | > 50° -2.5%(In) / °C | > 50° -2.5%(In) / °C | > 50° -2.5%(In) / °C | > 50° -2.5%(In) / °C | | | |
| Ambient Temperature Storage | -40 + +85°C | -40 + +85°C | -40 + +85°C | -40 + +85°C | -40 + +85°C | -40 + +85°C | -40 + +85°C | -40 + +85°C | -40 + +85°C | -40 + +85°C | -40 + +85°C | | | |
| Humidity at 25 °C | 95% to 25°C | 95% to 25°C | 95% to 25°C | 95% to 25°C | 95% to 25°C | 95% to 25°C | 95% to 25°C | 95% to 25°C | 95% to 25°C | 95% to 25°C | 95% to 25°C | | | |
| Cooling | Auto Convection | Auto Convection | Auto Convection | Auto Convection | Auto Convection | Auto Convection | Auto Convection | Auto Convection | Auto Convection | Auto Convection | Auto Convection | | | |
| GENERAL DATA | | | | | | | | | | | | | | |
| Isolation Voltage (IN / OUT) | 3000Vac | 3000Vac | 3000Vac | 3000Vac | 3000Vac | 3000Vac | 3000Vac | 3000Vac | 3000Vac | 3000Vac | 3000Vac | | | |
| Isolation Voltage(IN / PE) | 1605Vac | 1605Vac | 1605Vac | 1605Vac | 1605Vac | 1605Vac | 1605Vac | 1605Vac | 1605Vac | 1605Vac | 1605Vac | | | |
| Isolation Voltage(OUT / PE) | 500Vac | 500Vac | 500Vac | 500Vac | 500Vac | 500Vac | 500Vac | 500Vac | 500Vac | 500Vac | 500Vac | | | |
| Protection Class (EN/IEC 60529) | IP 20 | IP 20 | IP 20 | IP 20 | IP 20 | IP 20 | IP 20 | IP 20 | IP 20 | IP 20 | IP 20 | | | |
| Reliability (MTBF IEC 61709) | > 300 000 h | > 300 000 h | > 300 000 h | > 300 000 h | > 300 000 h | > 300 000 h | > 300 000 h | > 300 000 h | > 300 000 h | > 300 000 h | > 300 000 h | | | |
| Pollution Degree Environment | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | | | |
| Connection Terminal Blocks Screw Type | 4mm (30-10 AWG) 14 AWG) | 2,5mm (24-14 AWG) | 2,5mm (24-14 AWG) | 2,5mm (24-14 AWG) | 2,5mm (24-14 AWG) | 4mm (30-10 AWG) | 2,5mm (24-14 AWG) | 2,5mm (24-14 AWG) | 2,5mm (24-14 AWG) | 4mm (30-10 AWG) | 2,5mm (24-14 AWG) | | | |
| Protection class (with PE connected) | I | I | I | I | I | I | I | I | I | I | I | | | |
| Dimension (w-h-d) | 110x115x135 mm | 65x115x135 mm | 65x115x135 mm | 65x115x135 mm | 150x115x135 mm | 65x115x135 mm | 65x115x135 mm | 65x115x135 mm | 100x115x135 mm | 150x115x135 mm | 100x115x135 mm | | | |
| Weight | 0.85 Kg approx | 0.60 Kg approx | 0.60 Kg approx | 0.60 Kg approx | 1.55 Kg approx | 0.60 Kg approx | 0.60 Kg approx | 0.60 Kg approx | 0.85 Kg approx | 1.55 Kg approx | 0.85 Kg approx | | | |
| Safety Standard Approval | CE | CE | CE | CE | CE | CE | CE | CE | CE | CE | CE | | | |

(1) - Options to be defined by Order/S (ex: CBXXXXAS), Push Button not available
 (2) - Yes if required by order /TB1/TB2/TB3..

Optional for auxiliary Output: Temp Charging probe 1m or 3m length. Remote monitoring Display. Modbus/Can Bus Cable. Paralleling Cable.